

Potential Economic Impacts of *Cactoblastis cactorum* in Mexico

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The cactus moth, *C. cactorum* (Berg) (Lepidoptera: Pyralidae) is an *Opuntia* feeding pyralid that is native to Argentina, Peru and Paraguay. This species was the classic example of effective biological control of weeds until its establishment in South Africa, Hawaii, the Caribbean and Florida, USA. In Mexico it was first detected in August of 2006 in Isla Mujeres, Quintana Roo.

The widespread presence of cactus moth in Mexico will have negative impacts on the 43,000 subsistence farmers that depend directly on cactus pad (nopales) and fruit (tuna) production and on thousands of low-income families associated with the transport and commercialization of *Opuntia*-based products. It will also impact several million Mexicans that complement their basic diet with nopales obtained from back-yard plants, supermarkets and small vegetable stands. In 2006, production numbers for nopales in Mexico were 759,065 tons with a value of \$128 million USD. Tuna production for the same year was 366,381 tons with a value of \$71 million USD. These figures contribute 3.84% to the agricultural GIP and 0.02% to the National GIP. Current costs of production per hectare vary between \$2,800–5,500 dollars/year for nopales and \$1,400–2,800 dollars/year for tunas. If control tactics were required for cactus moth control, production costs would increase and negatively impact *Opuntia* growers. For example, the cost to apply one cover spray of Metidathion in the nopal growing areas of Mexico would be \$1.5 million USD. In tuna production areas the cost would be \$7 million USD.

The impact of cactus moth in poor communities in Mexico would be severe as production costs would increase for both nopal and tuna production in areas of the Federal District and the states of Mexico, Puebla, Morelos and Zacatecas. As a result of this increase, the number of jobs generated by this agricultural sector would be diminished and cause a reduction in the monetary value of the crop, which would impact purchases of food, clothing and essential services by citizens. Illegal immigration into the USA from states such as Mexico, Zacatecas, Morelos, Puebla and the Federal District would also increase. At present the immigration rate for citizens from Zacatecas nears 50%. The social impact of the destruction of *Opuntia* by *C. cactorum* on the people of Mexico, because of its prominence in the culture and national symbols, is difficult to measure but would surely have a considerable negative impact.

Furthermore, the wild species of *Opuntia* that cover approximately three million hectares of the Mexican territory could be at risk which would result in negative impacts on the native flora and fauna, and on hunting and recreation.

The considerable efforts made by SENASICA-SAGARPA and the DGSV to slow the arrival and spread of the cactus moth in Mexico must be continued; particularly those capacity-building activities directed at growers, politicians, academics and the public highlighting the importance of early detection of the cactus moth in Mexico. The female pheromone for *C. cactorum* has been identified and will be useful for monitoring areas at risk. Finally, two future events make it indispensable to preserve and to foment the

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species of *Opuntia* spp. And these are: the enactment of the North American Free Trade Agreement (NAFTA) with full trade coverage for all agricultural products beginning in 2008, and the probable reduction of the oil reserves of Mexico.

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